

cuneate-obovate,  $1\frac{1}{4}$ – $1\frac{3}{4}$  inches long, the margin dentate and long ciliate, tending to become erose at the tip, violet above, yellowish below, with dark markings like the eye of a peacock's feather; gland small, covered with matted yellow hairs, bordered by longer ones, like those on the margin of the petal: anthers oblong, four lines in length, scarcely shorter than the broad-winged filaments: capsule broad elliptic to nearly orbicular, an inch long, with a short, stout beak.—Collected at Pullman, Whitman Co., Washington, by L. F. Henderson, June, 1892 (no. 2,484); and by C. V. Piper, 1893 (no. 1,680); and at Union Flat, Whitman Co., by Lake and Hull, July, 1892 (no. 618). A species near *C. nitidus* Dougl., but well distinguished by its colored petals, and relatively long anthers and short filaments. Mr. Piper's no. 1,681, from Pullman, seems to be *Calochortus macrocarpus* Dougl., though the petals are white, with or without blue markings at their bases.—MERRITT LYNDON FERNALD, *Gray Herbarium, Cambridge, Mass.*

**Cross fertilization of petunias.**—This series of experiments in cross fertilizing the ordinary purple petunia, were continued until the third generation was obtained. The same precautions against accidental fertilization were used, as described in the previous notes published in this magazine for October, 1892.

The results obtained from the last generation were somewhat more conclusive than from the first, as would naturally be expected, yet the variation in this case was no more than would usually occur in three generations.

The variegated varieties showed the same lack of vitality and productiveness, throughout all the generations. The plants were smaller, weaker, and much less productive than the plain purple in almost every case; but a few plants which seemed as large and as vigorous as the average purple ones bloomed less freely; only a few of these blossoms produced seed capsules, which were always smaller.

The seeds obtained from the first year's experiments were all planted the same day, under exactly the same conditions and their germination was carefully watched and noted every day. No. 1 (self-fertilized), no. 2 (fertilized from a different flower on the same plant), and no. 3 (cross fertilized), were all sowed in the same box with only a thin board partition between, so that there could not have been the slightest difference in their conditions while germinating.

The variegated variety germinated more slowly and less vigorously than the purple; while many of the seeds failed to germinate at all.

On the seventh day a large percentage of no. 3 appeared above ground, while but four of no. 1, and none of no. 2 were up yet. On

the eighth day a few of no. 2 appeared, a few more of no. 1, and many more of no. 3 were above the soil. The seeds all continued germinating at intervals for over two months, though all germinating after the second week were less vigorous than the first.

From the time of germination until the plants died, no. 3 seemed much more vigorous and healthy; while no. 2 stood next, and no. 1 last in rank as over half the plants of the latter died before maturity.

The table below will show some of the chief differences in size, productiveness and vigor of the three series, 1, 2, and 3.

	First generation.			Second generation.			Third generation.		
	1.	2.	3.	1.	2.	3.	1.	2.	3.
Average days germinating .....				14	14	10	.....	.....	.....
Per cent. germinating.....				5	15	95	0	10	95
Height, inches, at four months....				4	6	7	.....	.....	.....
Height, inches, at six months....				10	12	13	.....	.....	.....
No. blossoms.....	126	95	134	40	70	121	.....	.....	.....
No. capsules ripened.....	24	21	48	3	37	50	.....	.....	.....
Aver. weight capsule in milligrams	19	27	41	1	16	44	.....	.....	.....
Per cent. blossoms producing seed	19.4	22.5	35.2	9.6	61.6	50	.....	.....	.....

A number of blossoms from each series were accidentally destroyed in various ways; but these were subtracted from each number before the averages for seed capsules were made.

It will be seen by this table that the same conclusions may be drawn as before; namely, that self-fertilization tends to weaken the plant, and also to lessen its productiveness; while cross fertilization has just the reverse effects. The crossing of different flowers on the same plant is no doubt better than self-fertilization; though not nearly so good as cross fertilization. There seemed to be a larger percentage of no. 2 producing seed; but the seed capsules were many of them almost empty, while all were much smaller, usually less than one third as large as no. 3. The third generation was planted but no. 1 failed to germinate, so that the plants were not cared for longer.—MINNIE REED, *Kansas Agric. College, Manhattan.*

*Trillium cernuum* L.—Monstrosities in the genus *Trillium* are not rare, but two unusually singular forms from Canobie Lake, Windham township, N. H., may be worth putting on record.

The plants are of the usual size and in each there is the normal whorl of leaves. In one plant, lifted about one inch above that nor-